



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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March 11, 1997

TO: Board of Oil, Gas and Mining

THRU: Mary Ann Wright, Associate Director *MAW*

THRU: D. Wayne Hedberg, Permit Supervisor *DWH*

FROM: Anthony A. Gallegos, Senior Reclamation Specialist *aaG*

RE: Response to Board Request for Comparision of Surety Amount Estimates, Three-Year Amount Versus 30% Total (Life of Mine) Amount, Summo USA Corporation, Lisbon Valley Copper Project, M/037/088, San Juan County, Utah

As requested by the Board at the January 22, 1997 Hearing, the Division has compared the 30% total surety amount proposed by Summo with a surety amount based on specific disturbances and facilities needed for the first three years of operation. The three-year estimate was prepared by Summo's consultant, Pat Gochnour, and forwarded to the Division. During the first three years of the project some mine facilities or features will need to be completely constructed (e.g. process ponds). Other features will only be a fraction of their "life of mine size" during the first three years of operation (e.g. waste dumps). The three-year estimate is approximately 3.8% (or \$97,603) greater than the estimate proposed during the January 22nd Hearing. The three-year disturbed area estimate is roughly 80.6 acres greater (395 acres) than the 314.4 acres proposed at the Hearing. The three-year estimate rounded to the nearest thousand dollars is \$2,689,000 in year 2000-\$.

The Division supports this revised amount and acreage. The BLM State Office has notified the Division this proposed amount meets the BLM's bonding requirements for project disturbances on federal lands in the first three years of project disturbance. Summo's consultant, Pat Gochnour, has informed the Division that Summo will post a surety amount based on the three-year estimate.

The reclamation cost estimate submitted during the January Board Hearing has been revised to show the features to actually be constructed during the first three years of the project. Calculations for these items are shown in the right margin of the attached revised estimate. The last page of the revised estimate shows the rounded three-year surety amount as \$2,689,000 in year 2000 dollars. This figure includes three years of escalation.

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M/037/088  
March 11, 1997

To assure compliance with this Order, Summo USA has agreed to provide the Division with appropriately certified surveys (aerial, g.p.s., etc.), and disturbed area maps that accurately reflect the actual affected areas, at least once each year with their year end Annual Report. The surveys and maps shall be stamped and prepared under the direct supervision of a registered professional engineer or registered land surveyor.

jb

Attachment: revised estimate of 3/5/97

cc: Terry McParland, BLM State Office  
Lynn Jackson, BLM, Moab District  
Dennis Fredericks, DWQ  
Will Stokes, SITLA

summo-3y.mem

Summo USA Corporation		last revisio		02/25/97	
Lisbon Valley Copper Project		filename m37-88.WB2		page "ESTIMATE"	
M/037/088		San Juan County			
Prepared by Utah State Division of Oil, Gas & Mining					
Details of Final Reclamation					
-This estimate is a revision of the 21-Jan-97 estimate by The Winters Co.					
-Items which have changed since the 03-Jan-97 estimate are highlighted					
	Total disturbed area =		1,048.0 acres		
Activity	area	Quantity	Units	\$/unit	\$
Waste dump A - 190 acres					
area of top	456,444		SY		
area of slope	462,680		SY		
scarify top (flat) area		456,444	SY	0.20	91,289
12 inches soil on top of dump		152,148	CY	1.25	190,185
12 inches soil on slope		154,227	CY	1.25	192,784
seed entire surface		190	ACRE	174	33,060
Total - waste dump "A" reclamation					507,318
Waste Dump "B" -- 94 Acres					
area of top	197,222		SY		
area of slope	258,240		SY		
scarify top (flat) area		197,222	SY	0.20	39,444
12 inches soil on top of dump		65,741	CY	1.25	82,176
12 inches soil on slope		86,080	CY	1.25	107,600
seed entire surface		94	ACRE	174	16,356
Total - Waste dump "B" reclamation					245,577
Waste Dump "C" - 120 Acres					
area of top	344,222		SY		
area of slope	238,633		SY		
scarify top (flat) area		344,222	SY	0.20	68,844
12 inches soil on top of dump		114,741	CY	1.25	143,426
12 inches soil on slope		79,544	CY	1.25	99,430
seed entire surface		120	ACRE	174	20,880
Total - Waste Dump "C" reclamation					332,581
Leach Pad - 254 Acres *					
Rinse Heap - 12% of total ore neutralized; rinsing & evaporation for 18 months					
lime (2.5 lbs/ton)x(\$0.025/lb)x(5.9M ton)	5,900,000	ton		0.063	368,750
labor, power & pump for draindown & evaporation for 18 months		1	lot	446,640	446,640
subtotal for heap rinse & evaporation					815,390
area of top	788,556		SY		
area of slope	441,653		SY		
12 inch clay cap on top	12	262,852	CY	2.50	657,130
12 inch clay cap on slope	12	147,218	CY	2.50	368,044
24 inch crushed rock on top	24	525,704	CY	2.50	1,314,260
24 inch crushed rock on slope	24	294,435	CY	2.50	736,088
12 inches soil on top	12	262,852	CY	1.25	328,565
12 inches soil on slope	12	147,218	CY	1.25	184,022
seed entire surface		254	ACRE	174	44,196
subtotal - clay, crushed rock, soil & seeding for leach pad					3,632,306
* POO has 266 acres. 12 acres is considered buffer area around the leach pad & is included in other areas (pond area, crusher area, powerline corridor, etc.)					

3-YR ESTIMATE last rev 03/05/97  
IN RIGHT MARGIN

% adjust \$

LOM = Life Of Mine

0 acres

0

Waste Dump "B" 0.54 % of total LO

0.54 21,401

0.54 44,585

dump not full heigh 0.27 29,052

51 acres 0.54 8,874

103,912

Waste Dump "C" 0.73 % of total LO

0.73 50,486

0.73 105,179

dump not full heigh 0.27 26,846

88 acres 0.73 15,312

197,823

Leach Pad 0.27 % of LOM ore  
Cells 1 & 2

0.27 220,155

Heap Earthwork

120 acres

0.27 980,723

\* POO has 266 acres. 12 acres is considered buffer area around the leach pad & is included in other areas (pond area, crusher area, powerline corridor, etc.)

**Reclamation of Miscellaneous Areas****Pond Area - 11 Acres**

raffinate pond - 12 inches soil	4,852	CY	1.25	6,065
PLS pond - 12 inches soil	4,852	CY	1.25	6,065
water runoff pond - 12 inches soil	8,229	CY	1.25	10,286
seed 3 pond areas	11	ACRE	174	1,914
Total - Pond Area Reclamation				24,330

**Plant & Crusher Area - 25.5 Acres**

apply 12 inches soil	41,080	CY	1.25	51,350
seed entire area	26	ACRE	174	4,437
Total - Plant Area Reclamation				55,787

**Haul Roads - 40 Acres**

scarify	192,889	SY	0.20	38,578
contour	64,296	CY	1.25	80,370
apply 12 inches soil	67,511	CY	1.25	84,389
seed entire area	40	ACRE	174	6,960
Total - Haul Road Reclamation				210,297

**Power Line Corridor - 64 Acres\***

*Note the Power Co. has requested the power line remain open	64	ACRE	n/c	0
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**Reseed Soil Stockpile Areas - 40 Acres**

reseed 40 acres	40	ACRE	174	6,960
Total - Reseed Soil Stockpile Areas				6,960

**Fences & Berms\* Around Open Pits**

fence around Sentinel Pit 1	5,620	LF	3.02	16,972
fence around Sentinel Pit 2	2,140	LF	3.02	6,463
fence around Centennial Pit	8,980	LF	3.02	27,120
fence around GTO Pit	7,410	LF	3.02	22,378
Total - Pit Fences				72,933

\*Note-Cost for berms is not shown, as these will be built during during plant construction phase. Fencing material will be recycled from the leach pad area.

**Surface Drainage Diversion Ditches\***

leach pad area	7,473	CY	1.25	9,341
plant area	1,595	CY	1.25	1,994
crusher area	1,810	CY	1.25	2,263
dump areas	13,668	CY	1.25	17,085
Total - Drainage Diversion Ditches				30,683

\*Work is for removing diversion sediment structures

**Reclamation of Miscellaneous Areas**

Pond Area 1.00 % of total LOM

11 acres 1.00 24,330

Plant & Crusher 0.78 % of total LOM

20 acres 0.78 43,755

Haul Roads 0.53 % of total LOM

21 acres 0.53 110,406

64 0

**Reseed Soil Stockpile Areas**

20 acres 0.50 % of total LOM  
0.50 3,480

Fences & Berms 1.00 % of total LOM

1.00 16,972  
1.00 6,463  
1.00 27,120  
pit inactive 0 0  
50,555

Surface Drainage % of total LOM varies

0.27 2,522  
1.00 1,994  
1.00 2,263  
0.53 9,055  
15,833



**DIRECT COSTS**

<b>Mobilization and Demobilization</b>	1 LOT	35,000	35,000
<b>Leach Pad &amp; Waste Dumps</b>	combined total of previous item	5,533,170	
<b>Misc. Surface Areas</b> parking lots & processing areas	combined total of previous item	400,989	
<b>Total Direct Costs</b>		<b>5,969,160</b>	

**INDIRECT COSTS**

<b>Plant Dismantling*</b>	1 LOT	450,000	450,000
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\*Assumes no salvage value. Dismantling involves removal of above ground above ground structures & the breaking up and burial of concrete foundations.

**Plugging monitoring wells with concrete from bottom to top**

3 of the Navajo wells considered pit de-watering wells

process area: 5 wells; 4-inch dia, 500 ft	2,500 lf	2.20	5,500
Navajo wells: 6 wells; 6-inch dia, 1200 ft	7,200 lf	3.30	23,760

<b>Engineering - 5% of total direct costs</b>	1 LOT	298,458	298,458
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Owners Cost --- OMITTED ---

**Water quality monitoring for 11 wells**

2 samples per well per year for 5 years	110 sample	500	55,000
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<b>Revegetation monitoring for 5 years</b>	5 year	5,000	25,000
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<b>Construction Management</b>	1 LOT	180,199	180,199
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<b>Contingency (10% of Total Direct Cos</b>	1 LOT	596,916	596,916
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<b>Total Indirect Costs</b>		<b>1,634,833</b>	
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<b>Unadjusted Total Costs</b>		<b>7,603,993</b>	
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<b>Escalation for 5 years at 2.58%</b>		<b>1,032,853</b>	
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<b>TOTAL RECLAMATION COSTS (2002-\$)</b>		<b>\$8,636,846</b>	
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average \$/acre cost = \$8,241

<b>30% of total reclamation costs (314.4 acres of disturbance)</b>		<b>\$2,591,054</b>	
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**DIRECT COSTS** 0.75 % of total LO

<b>Mob/demob</b>	0.75	26,250
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<b>subtotal pads &amp; dumps</b>		1,502,613
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<b>subtotal misc. areas</b>		248,359
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<b>Total Direct Costs 3-yr</b>		<b>1,777,221</b>
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**INDIRECT COSTS** 0.75 % of total LO

<b>Plant Dismantling</b>	0.75	337,500
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**Plugging monitoring wells**

	LF	
3 wells	1500	3,300
4 wells	4800	15,840

**Water quality monitoring**

70 samples	35,000
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0.27 % of total LOM	6,750
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0.27 % of total LOM	48,654
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	177,722
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<b>Total Indirect Costs 3-yr</b>	<b>713,627</b>
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<b>Unadjusted Total Costs 3-</b>	<b>2,490,848</b>
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<b>Escalation for 3 y   (2000-\$)</b>	<b>197,808</b>
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<b>Total for 3-yr estimate</b>	<b>\$2,688,657</b>
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average \$/acre cost = \$6,807

(30% est) - (3-yr est) (\$97,603)

percent difference = -3.8%

395 ACRES DISTURBED FOR 3-YR ESTIM

**ROUNDED 3-YR ESTIMAT** **\$2,689,000**